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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 12109 (1987): General requirements for light duty sewing machine heads for industrial use [MED 29: Sewing Machines]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



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AMENDMENT NO. 1 OCTOBER 1996
TO
IS 12109 : 1987 GENERAL REQUIREMENTS FOR
LIGHT DUTY SEWING MACHINE HEADS FOR
INDUSTRIAL USE

(Page 3, Table 2) — Substitute the following for the existing:

TABLE 2 SEWING REQUIREMENTS
(Clause 8)

Sl No.	Item	Needle	Type of Thread	Fabric	No. of Layers	Stitch Length (Approx) mm	Sewing Speed (Approx) rev/min	Sewing Length (Approx) mm
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Regular sewing	14	Cotton thread	Shirting cloth	2	1.5 & 3	1 000 & 1 800	1 000
ii)	Stem sewing	14	Cotton	Muslin (length of step approx 25 mm)	4 to 12 and 12 to 4	do	1 000	300
iii)	Heavy material	16	Cotton thread	Drill cloth	2	3	1 000	1 000
iv)	Light material	11	Silk thread	Plain synthetic fabric	2	1.5	1 800	1 000
v)	Sewing test for straightness	14	—	Blue print paper	2	3	1 500	300 with hands free. The Max height of arc shall be below 5 for the free chord of 200

(LM 18)

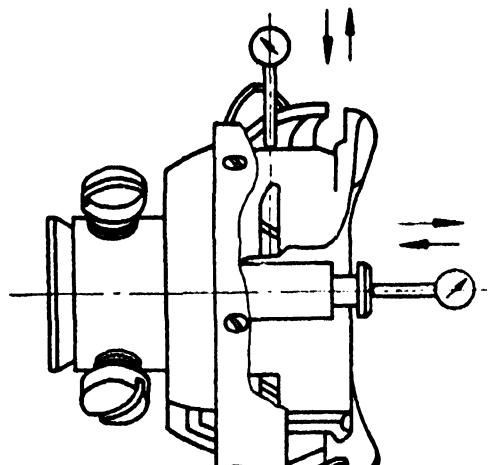


FIG. 3

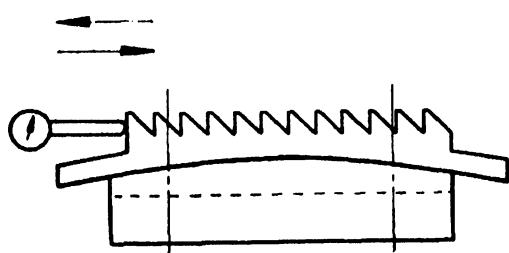


FIG. 4

EXPLANATORY NOTE

While preparing this standard, assistance has been derived from JIS B 9071-1964 LSI low speed sewing machine heads for industrial use', issued by the Japanese Standards Association.

11. Packing — All parts of the machine which are free to move or rotate shall be packed in strong wooden packing cases or corrugated cardboard boxes, securely fastened in a fixed position to prevent movement or vibration while in transit. The tools and accessories box shall be placed in the packing case in such a way that it does not directly come in contact with the machine. The box shall be securely fastened in a closed position to prevent opening in transit.

12. Sampling — Unless otherwise agreed to between the supplier and the purchaser, the single sampling plan with inspection level II and AQL of 2.5 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1983 'Sampling inspection tables: Part 1 Inspection by attributes and by count of defects (first revision)', shall be followed.

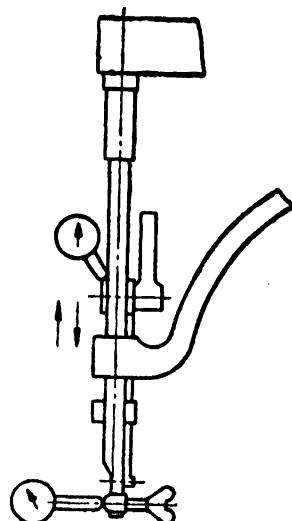


FIG. 1

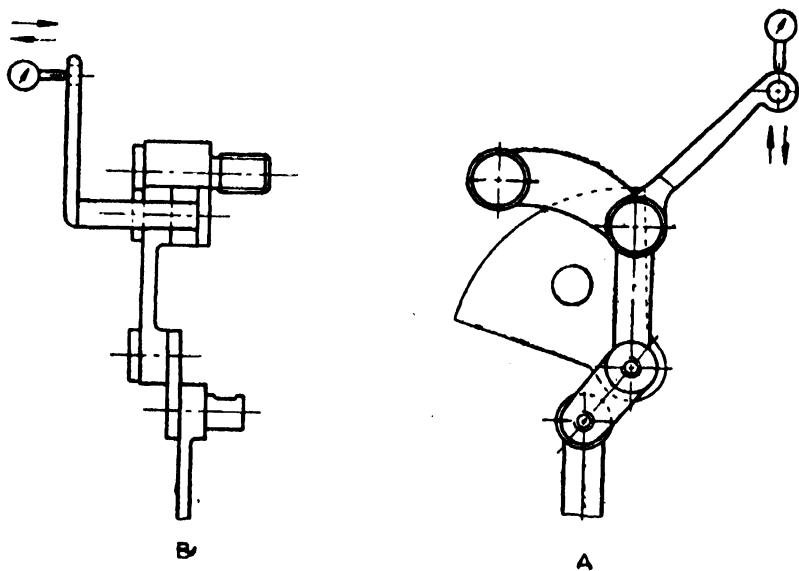


FIG. 2

5. Lubrication — Means shall be provided to apply lubricant readily and properly to all bearings and rubbing surfaces in the machine.

6. Accuracy Requirements

6.1 The sewing machine shall have smooth movement without any abnormal sound.

6.2 The accuracy of all moving parts shall be such as to ensure smooth functioning of the sewing machine. The assembly clearances shall conform to the values given in Table 1.

7. Durability Requirements — To check the performance of sewing machine and the components used, the machine shall be operated continuously for 4 hours at 1800 rev/min at no load using maximum forward feed. Lubricate the machine before the test and at half an hour intervals. The difference in assembly clearances before and after the test shall not exceed the values given in Table 1.

8. Sewing Requirements — The sewing test shall be carried out as per conditions stipulated in Table 2 and shall satisfy the following requirements.

8.1 There shall be no skip stitching.

8.2 There shall be no unusual thread breakage.

8.3 Stitches shall have uniform length and thread tension shall be proper.

8.4 There shall be no noticeable fabric puckering.

8.5 Feed mechanism function shall be proper.

TABLE 2 SEWING REQUIREMENTS

(Clause 8)

Sl No.	Item	Needle	Type of Thread	Fabric	No. of Layers	Stitch Length (Approx) mm	Sewing Speed (Approx) rev/min	Sewing Length (Approx) mm
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Regular sewing	14	Cotton thread	Shirting cloth	2	1.5 & 3	1000 & 1800	1000
ii)	Stem sewing	14	Cotton	Muslin (length of step approx 25 mm)	4 to 12 and 12 to 40	do	1000	300
iii)	Heavy material	16	Cotton thread	Drill cloth	2	3	1000	1000
iv)	Light material	11	Silk thread	Plain synthetic fabric	2	1.5	1800	1000
v)	Sewing test for straightness	14	—	Blue print paper	2	3	1500	300 with hands free. The max height of arc shall be below 5 for the free chord of 200

9. Accessories — The accessories like spool pins, bobbins, needles, screw drivers, oil can, etc, shall be placed in a suitable metal or plastic box and the quantity of such accessories may be decided by the manufacturers as per customer's requirements.

10. Marking

10.1 Each machine shall be identified by a name plate giving the type, serial No. and the manufacturer's name or trade-mark; the serial No. may be given on bed plate, if not given on name plate.

10.2 Certification Marking — Machine may also be marked with the certification mark. Details available with the Bureau of Indian Standards.

TABLE 1 ASSEMBLY CLEARANCES AND MAXIMUM ALLOWABLE CHANGE AFTER DURABILITY TEST
(Clauses 2.2, 6.2 and 7)

Sl. No.	Item	Measuring Condition	Measuring Direction	Indicator Position	Approx. Pressure, g	Ref to Fig.	Maximum Assembly Clearance	Maximum Change in Assembly Clearance After Durability Test
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Needle bar	Needle bar at lower-most position	a) In the direction of motion b) At right angle to the direction of motion	Top face of link stud On needle clamp	500 500*	1 1	0.10 0.10	0.04 0.03
ii)	Thread take up lever	Thread take up lever at top and intermediate position of motion	a) In the direction of motion b) At right angle to the direction of motion	Around the thread hole	100	2A	0.50	0.10
iii)	Rotating hook	With bobbin-case removed, play of rotating hook bobbin case holder	a) In and out b) Up and down	On the centre pin Top of the holder	100 100	2B	0.75	0.20
iv)	Feed mechanism	Feed dog at the highest position above the needle plate	In the direction of motion	On the front teeth	100	3	0.07	0.02
v)	Arm shaft	Shaft end	Axial	On the fly-wheel	1 000	—	0.05	0.02
vi)	Rotating hook shaft	Shaft end	Axial	Shaft end	500	—	0.04	0.02

*Pressure to be applied just below the lower needle bar bushing.

GENERAL REQUIREMENTS FOR LIGHT DUTY SEWING MACHINE HEADS FOR INDUSTRIAL USE

1. Scope — Covers the general requirements of L 12* type light duty industrial sewing machine heads with maximum speed of 1800 stitches per minute and mainly used for light fabric stitching. The main feature being rotary hook for lower thread which operates in a full rotary motion in a vertical plane on a horizontal axis, link-type, thread take-up and positive transmission from arm shaft to rotary hook shaft.

2. Construction and Function

2.1 Arm and bed shall be manufactured from grey cast iron castings conforming to grade FG150 of IS : 210-1978 'Specification for grey iron castings (third revision)'.

2.2 The components used in the sewing machine head shall be of such materials, and dimensions and precision that the assembly clearances before and after continuous running on no load shall conform to the values given in Table 1.

2.3 The needle plate and slide plate shall be properly fitted on machine bed to permit smooth feeding of fabric.

2.4 Needle location shall be approximately in the centre of hole to allow its free movement.

2.5 The feed dog shall be capable of being raised up to a height of 1.2 mm above the surface of needle plate without interference.

2.6 In the raised position of presser foot, the minimum clearance between the presser foot and needle plate surface shall be 6 mm. There shall be provision to raise the presser foot with the help of knee lifter attachment.

2.7 All the components shall be securely fitted and shall permit smooth movement.

3. Finish

3.1 The sewing machine body shall be painted on all external surfaces to give smooth and even appearance. The transfers applied shall be firm and without unusual printing defects.

3.2 The components shall be coated with paint or given a suitable surface treatment to prevent rust. The slide plate, needle plate and balance wheel shall have a minimum plating thickness of 15 micrometres. The plated surfaces shall be smooth, and free from plating defects.

4. Sewing Mechanism

4.1 **Reverse Stitching** — Sewing machine shall be provided with means to reverse the feeding action of the feed dog for back-tack stitching which shall be capable of being performed while the machine is in operation.

4.2 **Stitch Regulator** — The stitch regulator shall be provided in the machine at convenient location and shall be capable of adjusting the length of stitch over a range of 7 to 20 stitches per 25 mm. Suitable indication shall be provided for increase/decrease in stitch length.

4.3 **Balance Wheel** — The machine shall be provided with a balance wheel which shall have a belt groove to transmit drive from tradle mechanism or electric motor to the sewing machine. There shall be suitable provision to disengage the drive from the sewing mechanism, whenever required.

4.4 **Thread Tension** — The machine shall be provided with thread tension arrangement to adjust the amount of tension required to sew satisfactory stitches and means shall be provided for automatic thread tension release when presser foot is raised to the maximum height.

*L12 stands for lock-stitch, single needle, two threads (see IS : 9152-1979 'Glossary of terms and identification symbols relating to classification of industrial sewing machines').